

FINE-PITCH DEVICE LITHOGRAPHY USING A SACRIFICIAL HARDMASK

ABSTRACT OF THE DISCLOSURE

5 A method is described for forming a metal pattern in a low-dielectric constant substrate. A hardmask is prepared which includes a low-k lower hardmask layer and a top hardmask layer. The top hardmask layer is a sacrificial layer with a thickness of about 200 Å, preferably formed of a refractory nitride, and which serves as a stopping layer in a subsequent CMP metal removal process. The patterning is performed using resist layers. Oxidation damage to the lower hardmask layer is avoided by forming a protective layer in the hardmask, or by using a non-oxidizing resist strip process.

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